

IN THE CLAIMS:

Please CANCEL claims 10-19 without prejudice to or disclaimer of the recited subject matter.

Please ADD new claims 20-30, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1-9. (Previously Cancelled)

10-19. (Cancelled)

20. (New) A linear motor comprising:

    a first magnet group having a plurality of first magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of second magnets arrayed such that polarization directions thereof are periodically opposite and intersect those of the first magnets;

    a second magnet group having a plurality of third magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of fourth magnets arrayed such that polarization directions thereof are periodically opposite and intersect those of said third magnets;

a support member which supports the first magnet group on one side and the second magnet group on the other side;

first and second electromagnetic coils disposed on both sides of the support member, wherein the first electromagnetic coil is disposed to oppose the first magnet group to generate a Lorentz force in cooperation with the first magnet group, and the second electromagnetic coil is disposed to oppose the second magnet group to generate a Lorentz force in cooperation with the second magnet group; and

first and second yokes disposed on both sides of the support member, wherein the first yoke is integrated with the first electromagnetic coil and the second yoke is integrated with the second electromagnetic coil.

21. (New) The linear motor according to claim 20, wherein one of a motor movable element and a stator has the first and second magnet group and support member, while the other has the first and second electromagnetic coils and the first and second yokes.

22. (New) The linear motor according to claim 21, wherein the first and second yokes are not movable relative to each other.

23. (New) The linear motor according to claim 20, wherein the polarization directions of the first and second magnets intersect with each other at an angle of substantially ninety degrees,

and the polarization directions of the third and fourth magnets intersect with each other at an angle of substantially ninety degrees.

24. (New) The linear motor according to claim 23, wherein the first, second, third and fourth magnets have rectangular parallelepiped permanent magnets.

25. (New) The linear motor according to claim 24, wherein the first, second, third and fourth magnets are the same shape.

26. (New) The linear motor according to claim 23, wherein the magnets located at a terminal end of the first and second magnet groups have smaller volumes than those of the remaining magnets, respectively.

27. (New) The linear motor according to claim 26, wherein each one of the first and second magnet groups generates a sine wave magnetic field.

28. (New) A stage apparatus comprising:

a stage;

a linear motor which drives the stage;

one of a motor movable element and a stator having (i) a first magnet group having a plurality of first magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of second magnets arrayed such that polarization directions thereof are periodically opposite and intersect those of the first magnets, and (ii) a second magnet group having a plurality of third magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of fourth magnets arrayed such that the polarization directions thereof are periodically opposite and intersect those of said third magnets, and (iii) a support member which supports the first magnet group on one side and the second magnet group on the other side; and

the other of the motor movable element and the stator having (i) first and second electromagnetic coils disposed on both sides of the support member, wherein the first electromagnetic coil is disposed to oppose the first magnet group to generate a Lorentz force in cooperation with the first magnet group, and the second electromagnetic coil is disposed to oppose the second magnet group to generate a Lorentz force in cooperation with the second magnet group, and (ii) first and second yokes disposed on both sides of the support member, wherein the first yoke is integrated with the first electromagnetic coil and the second yoke is integrated with the second electromagnetic coil.

29. (New) An exposure apparatus for exposing a pattern of a master to a substrate, said apparatus comprising:

a stage which moves at least one of the master and the substrate;  
a linear motor which drives the stage;  
one of a motor movable element and a stator having (i) a first magnet group having a plurality of first magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of second magnets arrayed such that polarization directions thereof are periodically opposite and intersect those of said first magnets, (ii) a second magnet group having a plurality of third magnets arrayed such that polarization directions thereof are periodically opposite, and a plurality of fourth magnets arrayed such that polarization directions thereof are periodically opposite and intersect those of said third magnets, and (iii) a support member which supports the first magnet group on one side and the second magnet group on the other side; and

the other of the motor movable element and the stator having (i) first and second electromagnetic coils disposed on both sides of the support member, wherein the first electromagnetic coil is disposed to oppose the first magnet group to generate a Lorentz force in cooperation with the first magnet group, and the second electromagnetic coil is disposed to oppose the second magnet group to generate a Lorentz force in cooperation with the second magnet group; and (ii) first and second yokes disposed on both sides of the support member, wherein the first yoke is integrated with the first electromagnetic coil and the second yoke is integrated with the second electromagnetic coil.

30. (New) A device manufacturing method comprising:  
providing a master and a substrate to the exposure apparatus according to claim  
29; and  
exposing a pattern of the master to the substrate.